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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO.                |
|---|-------------|----------------------|---------------------|---------------------------------|
| 10/723,969  | 11/26/2003  | Scott Mordin Hoyte   | 128595              | 9511                            |
| 7590  | 08/10/2005  |                      |                     | EXAMINER<br>KHUU, HIEN DIEU THI |
| John S. Beulick<br>Armstrong Teasdale LLP<br>One Metropolitan Square<br>Suite 2600<br>St. Louis, MO 63102 |             |                      | ART UNIT<br>2863    | PAPER NUMBER                    |
| DATE MAILED: 08/10/2005   |             |                      |                     |                                 |

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                 |              |
|------------------------------|-----------------|--------------|
| <b>Office Action Summary</b> | Application No. | Applicant(s) |
|                              | 10/723,969      | HOYTE ET AL. |
| Examiner                     | Art Unit        |              |
| Cindy D. Khuu                | 2863            |              |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_.
- 2a) This action is **FINAL**.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 26-28 is/are allowed.
- 6) Claim(s) 1,4,7,9,10,12,13,15,19,21,23 and 24 is/are rejected.
- 7) Claim(s) 2,3,5,6,8,11,14,16-18,20,22 and 25 is/are objected to.
- 8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 26 November 2003 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

|   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | Paper No(s)/Mail Date: ____   |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/26/03</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: ____                                     |

## DETAILED ACTION

### *Drawings Objections*

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "diaphragm" (Claim 26) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Figures 1, 2 and 7 are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 82, 86, 224, 214 and 710. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4, 7, 9-10, 12-13, 15, 19, 21, and 23-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Shu et al. (5,544,478).

With respect to claims 1 and 15, Shu discloses a method and system for generating a signal indicative of a pressure oscillation in a chamber (Abstract, Lines 7-8), said system comprising: a sensor positioned in fluid communication with the chamber, said sensor configured to generate an output signal relative to pressure within the chamber (FIG 2: ID 335); a sampling circuit configured to periodically receive the output signal, said sampling circuit configured to digitize the received signal (Column 7: Lines 62-67); a Fourier transform circuit configured to generate an energy spectrum of the digitized signal; and an analyzer configured to process the energy spectrum to determine an energy spike indicative of a substantially non-random component of the digitized signal (Column 6: Lines 25-31) (Column 8: Lines 3-15).

With respect to claims 4 and 19, Shu discloses a method and system wherein the chamber is a combustor and wherein said sensor is configured to sense a dynamic pressure indicative of humming within the combustor (FIG.2: ID 700).

With respect to claims 7 and 21, Shu discloses a method and system wherein said sampling circuit comprises an analog-to-digital converter (FIG. 3: ID 710).

With respect to claim 9, Shu discloses a method wherein transforming the digitized signal from the time domain to the frequency domain comprises applying a Fourier transform to the digitized signal (FIG. 3: ID 714).

With respect to claim 10, Shu discloses a method wherein transforming the digitized signal comprises transforming the digitized signal in real-time (Column 8: Lines 10-11).

With respect to claims 12 and 23, Shu discloses a method and system wherein said analyzer is configured to: determine a signal energy spike amplitude at a predetermined frequency of the energy spectrum, the frequency correlative to a combustor humming frequency; compare the spike amplitude to a predetermined threshold energy amplitude limit; and employ the comparison to facilitate reducing humming (Column 8: Lines 35-40)(FIG. 3:ID 720) (Column 9: Lines 11-19).

With respect to claims 13 and 24, Shu discloses a method and system wherein said analyzer is configured to: determine a signal energy spike amplitude at a frequency of the energy spectrum; compare the spike to a predetermined threshold energy amplitude limit corresponding to the respective frequency; and employ the comparison to facilitate reducing humming (Column 9: Lines 1-5).

#### ***Allowable Subject Matter***

Claims 2-3, 5-6, 8, 11, 14, 16-18, 20, 22, and 25 are objected to as being dependent upon a rejected base claims, but would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art of record, taken alone or in combination, fails to disclose or render obvious, which makes the following claims allowable over the prior art:

With respect to claims 2 and 16, a method and system wherein said sensor comprises a diaphragm that is configured to deflect relative to a pressure variation within the chamber.

With respect to claims 3 and 17-18, a method and system wherein sensing deflection of a diaphragm coupled in fluid communication with the chamber comprises sensing deflection of the diaphragm using an eddy current sensor.

With respect to claims 5 and 20, a method and system wherein the combustor includes a static pressure component and a dynamic pressure component and wherein said sensor is configured to generate a signal relative to the dynamic pressure component.

With respect to claim 6, a method wherein generating a signal that is relative to the dynamic pressure component comprises generating an analog electrical signal relative to the dynamic pressure component.

With respect to claim 8, a method wherein digitizing the signal further comprises convolving the digitized signal.

With respect to claim 11, a method wherein transforming the digitized signal from the time domain to the frequency domain comprises: converting the digitized signal into an analog signal using a digital-to-analog converter; and applying a Fourier transform to the analog signal.

With respect to claims 14 and 25, a method and system wherein the signal includes a noise component and a repetitive signal component and wherein analyzing the energy spectrum comprises amplifying the repetitive signal component while not substantially amplifying the noise component.

With respect to claim 22, a system in accordance with claim 15 wherein said sampling circuit is coupled to a convolution circuit that is configured to generate a complex impedance value relative to the sensor output signal.

Claims 26-28 are allowed.

With respect to claim 26, a convolution circuit configured to generate a complex impedance value relative to the sensor output signal.

Shu et al. (5,544,478) teach a system for generating a signal indicative of humming in a gas turbine combustor, said system comprising: a sensor positioned in fluid communication with the chamber, a Fourier transform circuit configured to generate an energy spectrum of the digitized signal (Column 6: Lines 25-31); and an analyzer configured to process the energy spectrum (Column 8: Lines 3-15).

However, Shu does not teach at least a sensor comprising: a diaphragm configured to deflect relative to a pressure variation within the chamber, and an eddy current transducer configured to generate an output signal relative to the deflection; and a convolution circuit configured to generate a complex impedance value relative to the sensor output signal.

Claims 27-28 are allowed due to their dependency on claim 26.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Syed (4,829,813), Acton et al. (5,141,391), Andersson et al. (4,248,093).

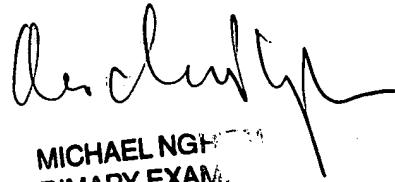
### ***Fax/Telephone Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cindy D. Khuu whose telephone number is (571) 272-8585. The examiner can normally be reached on M-F, 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CHL 8/6/05



MICHAEL NGH  
PRIMARY EXAM.